



# Counter-Terrorism Initiatives in Defence R&D Canada

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National  
Defence

Défense  
nationale

Canada

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# Outline

- DRDC Mission & Resources
- CB Defence Program
- Chemical-Biological-Radiological-Nuclear (CBRN) S&T Initiative
- Counter-Terrorism Technology Centre



# Defence R&D Canada Mission

*The National Authority for providing Science & Technology leadership to advance and maintain Canada's defence capabilities.*



**Defence Research Establishments**

- ◆ *Advise on Science & Technology*
- ◆ *Conduct Defence R&D*
- ◆ *Assess technology trends, threats, and opportunities*
- ◆ *Support the Canadian Defence industrial base*
- ◆ *Conduct S&T projects for non-DND clients*



Defence R&D Canada

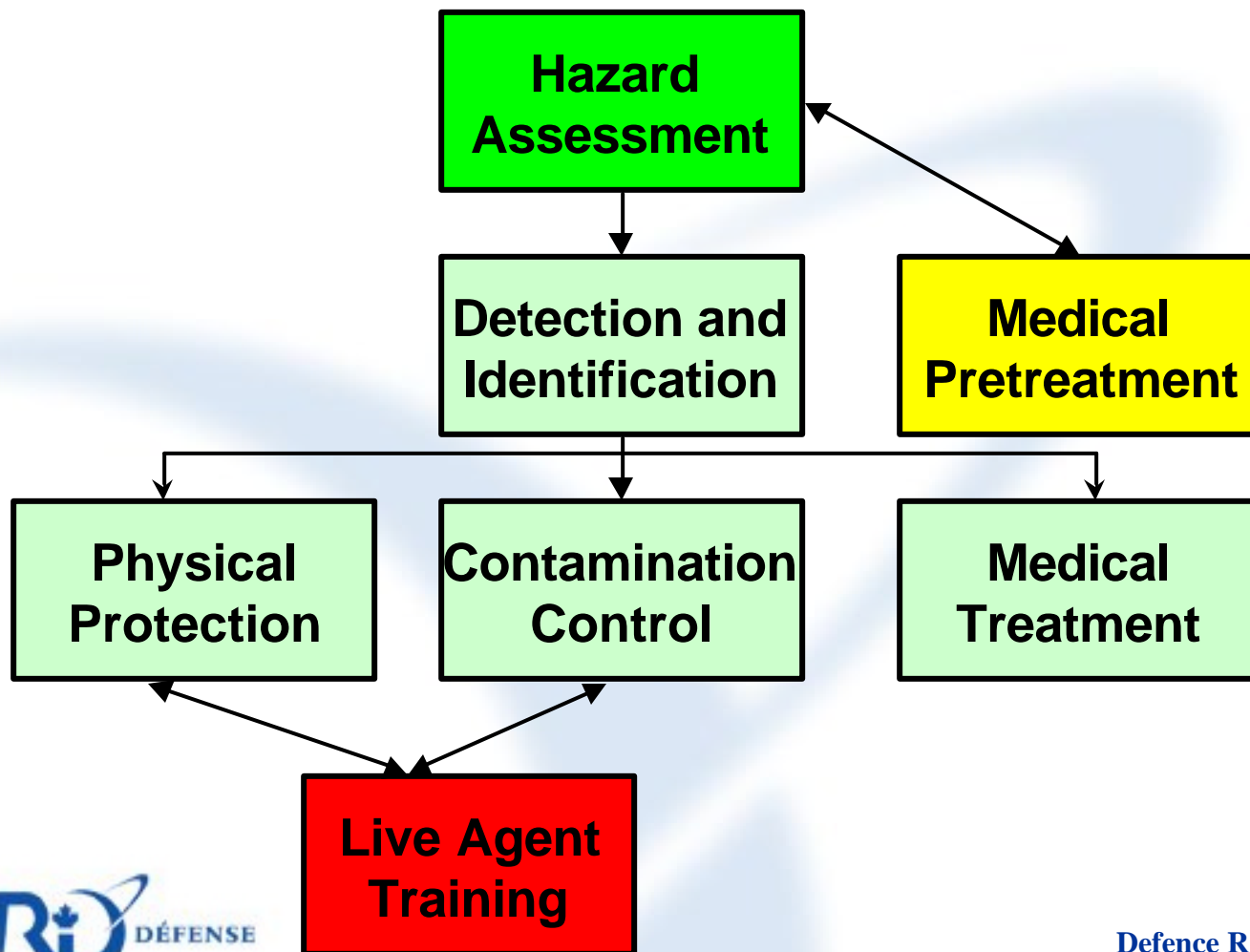


# DRDC Resources

- 1100 people
- \$200M
- 5 DRE'S



# CB Defence Program





# FY 00/01 Achievements

- Canadian Integrated Biological Agent Detection System (CIBADS)
- Hot Environment CB Suit
- NBC Glove
- Canadian Aqueous System for Chemical-Biological Agent Decontamination (CASCAD)
- Support to the Nuclear Emergency Response (ERN) Program and Canadian Counter-terrorism Initiatives
- Advances in Medical Countermeasures



# Technology Demonstration Projects

## Ongoing

- CIBADS
- Vaccine Development

## New

- CB *plus* Combat Duty Uniform for Broad Spectrum Toxic Hazard Personal Protection
- Fieldable and Portable Aerosol Inhalers for Immediate Prophylaxis and Therapy Against BW Infectious Agents





# Chemical-Biological-Radiological- Nuclear Research & Technology Initiative (CRTI)



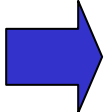
# Canadian Government Priorities

## Post 11 Sep 01

- Keeping the terrorists out
- Deterring, preventing, detecting, prosecuting, and removing terrorists
- Facilitating Canada – USA relations
- Support for international CT action
- Protection of infrastructure and emergency planning
- Safety of Canadians
- The health of the economy



# National Security S&T Themes

- 
- Chemical/Biological/Radiological/Nuclear Protection
  - Disaster Consequence Management
  - Information Infrastructure Security
  - Physical Infrastructure Security
  - Knowledge Management of Surveillance & Intelligence Information



# Budget for CBRN R&T Initiative

- **\$170M over 5 years**
- **Objective:**
  - Improve Canada's ability to respond to chemical, biological, radiological and nuclear incidents



# CRTI Approach

- Involve/consult clients and stakeholders.
- Develop a framework for assessing risk and for determining S&T capacity and capability gaps.
- Identify current S&T programs that address the gaps.
- Identify new initiatives required.



# CBRN Hazard/ Target Risk Matrix

Hazard \ Target	People in City/ Enclosed Space	Critical Infrastructure	Food/ Water Supply & Environment	Agro-System	Combined
Biological					
Chemical					
Radiological/ Nuclear					
Combined					



# S&T Current Capability Rating Matrix - Example

S&T Contribution \ Operations	Reaction		Consequence Management		
	Detect/ Identify	Protect/ Treat	Contain/ Decontam/ Casualty Care	Forensics	Public Confidence
Equip	Y		R		
Train				G	
Assess and Advise		G		G	
Prepare for future threats		R			



# Risk Matrix

Ta rg et Hazard	People in City/ Enclosed Space	Critical Infrastruc ture	Food/ Water Supply & Environm ent	Agro- Syste m	Combi ned
Biological					
Chemica l					
Radiological/ Nuclear					
Combined					

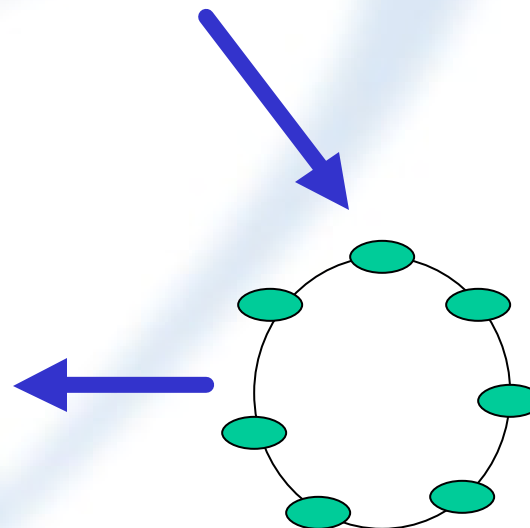
# Gap Analysis

Opera tions S&T Contrib ution	Reaction		Consequence Management		
	Detect/ Identify	Protect/ Treat	Deconta m/ Casualty Care	Foren sics	Public Confid ence
Equip			R		
Train				G	
Assess and Advise		G		G	
Prepare for future threats		R			



	Capacity	Capability
Priorities		

## Work Packages



## Lab Clusters





# CBRN R&T Initiative - Management Approach

- CRTI managed by DRDC on behalf of the community.
- CRTI Secretariat - Director and small staff.
- Inter-departmental Steering Committee at Assistant Deputy Minister level, chaired by DND ADM(S&T).
- Annual report to Treasury Board.



# CBRN R&T Initiative - Characteristics

- The CRTI comprises a collection of projects selected via an annual competitive process (quality and relevance review coordinated by the CRTI Secretariat).
- Projects are led by a federal department or agency. Other levels of government, academia or industry can participate. In principle, at least two federal departments/agencies should be participants in each project.



# Project Categories

- **Technology Acquisition:** to establish or enhance the infrastructure and equipment of the Lab Clusters that support the CBRN response.
  - *0 - 1 year horizon. Typically “off-the-shelf” purchase.*
- **Technology Acceleration:** to accelerate the commercialization and transition to use by First Responders and other operational authorities of technologies that address key capacity gaps.
  - *0.5 - 2 year horizon. Technology that is “in the pipeline”.*
- **Research and Technology Development:** to close the gaps in knowledge and capabilities of the S&T and operational communities so as to enable effective response to future CBRN threats.
  - *1.5 - 3.5 year horizon. Can include technology demonstration.*



# Work Plan to End March 2002

- Stand up Steering Committee and Project Team
- Develop and initiate CRTI communications strategy
- Develop Lab Cluster Model
- Discussions with US/UK counterparts
- Conduct CRTI workshop
  - *confirm roles and responsibilities for operational and S&T communities*
  - *identify capability and capacity gaps*
  - *identify initial RTI funding themes*
  - *identify initial Technology Acquisition & Technology Acceleration projects*

Initial projects underway May - June 2002



# **Counter-Terrorism Technology Centre at the Defence Research Establishment Suffield**

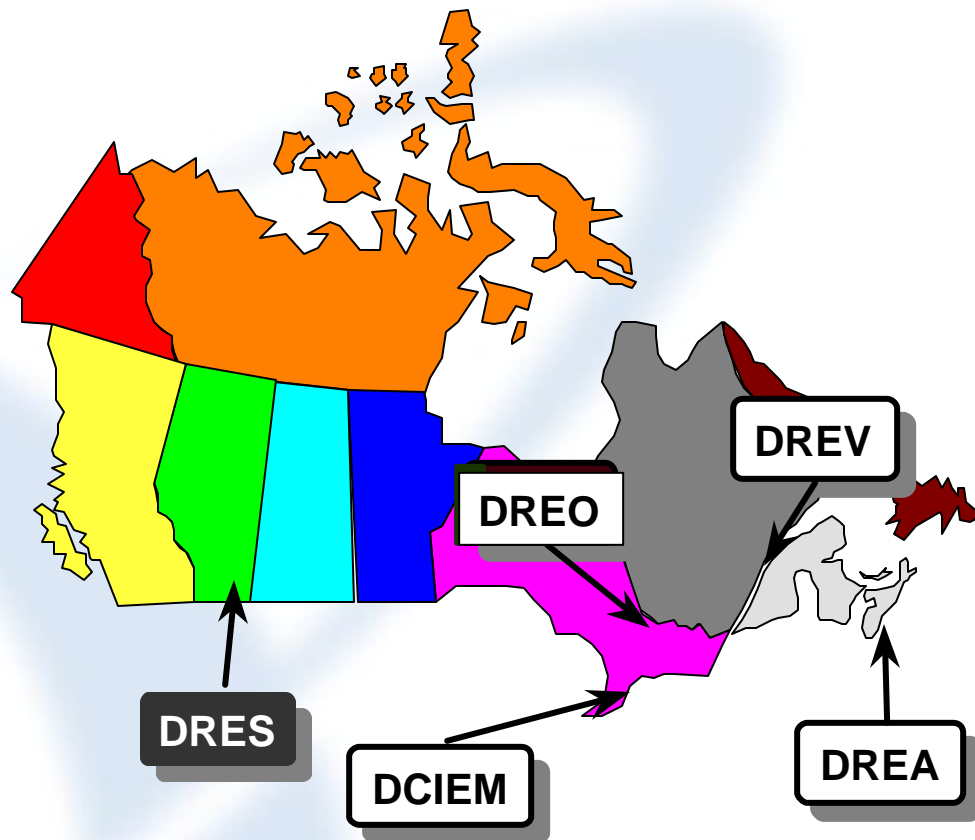


# DRE Suffield

## DRES

### Medicine Hat

- 145 staff
- *Chemical & Biological Defence*
- *Land Combat Systems*





# Live Agent Training

- US Marines CB Incidence Response Force
- US Tech Escort CB Response Team
- Australian CBR Response Team
- Canadian NBC Response Team
- Land Force Technical School





# Counter-Terrorism Technology Centre

- Train first responders to CB events.
- Develop guidelines to deal with CB events.
- Evaluate equipment proposed for first responders.
- Provide a technology evaluation site for industries developing products for first-responder, emergency-medical and military communities.
- Facilitate access of first responders to CB experts at DRES.





# Training Elements

- Scenario-based training, including live agent
- Guideline development and gap analysis for first responders
- Certification of CB equipment for first responders
- Test and evaluation services
- Reference centre for CB agents



# Facilities

- DRES already has a range of facilities for CB defence R&D, as well as training
- DRES Experimental Proving Ground

## **New Construction**

- Indoor training centre to house scenario set-ups
- Lecture training centre (theatre, class rooms, etc.)
- Test & evaluation centre

***Construction to start in 2002, finish in 2004.***

**Defence R&D Canada  
provides Science and  
Technology leadership  
in the advancement and  
maintenance of Canada's  
defence capabilities.**

